

Application Serial No: 10/583,025
Responsive to the Office Action mailed on: December 23, 2008

REMARKS

This Amendment is in response to the Office Action mailed on December 23, 2008. Claims 1 and 2 are amended. Claim 1 is amended and is supported, for example, in the specification at page 10, lines 3-8. Claim 2 is amended into independent form and includes features of claim 1 and is further supported, for example, in the specification at page 11, lines 1-9. No new matter is added. Claims 1-8 are pending.

§103 Rejections:

Claims 1-5, 7 and 8 are rejected as being unpatentable over Hassler (US Patent No. 4,218,768) in view of Ito (US Publication No. 2002/0057540) and further in view of Kodera (US Patent No. 4,451,909). This rejection is traversed.

Claim 1 is directed to an ultrasonic diagnostic apparatus that requires, among other features, a transmission power source for supplying power to transmission pulse generators. The transmission power source includes a plurality of mode-specific step-up power sources for outputting a voltage corresponding to each of a plurality of signal processing modes, a power source side capacitor connected to an output side of each of the mode-specific step-up power sources for stabilizing the voltage, and a mode changeover switch provided between the output side of the mode-specific step-up power sources and the output side capacitor for switching between the mode-specific step-up power sources that supply power to the transmission pulse generators. The transmission power source also includes a power supplying power source connected to an input side of the mode-specific step-up power sources for supplying power, and a power regeneration capacitor with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground.

The combination of Hassler, Ito and Kodera does not teach or suggest these features. In particular, nowhere does the combination of Hassler, Ito and Kodera teach or suggest the transmission power source of claim 1. The rejection asserts that Hassler does not teach a plurality of pulse generators. Accordingly, Hassler also cannot teach or suggest a transmission power source for supplying power to transmission pulse

Application Serial No: 10/583,025

Responsive to the Office Action mailed on: December 23, 2008

generators. Moreover, the current power supply discussed in column 6, lines 13-18 of Hassler is silent as to whether it includes a plurality of mode-specific step-up power sources for outputting a voltage corresponding to each of a plurality of signal processing modes, a power source side capacitor connected to an output side of each of the mode-specific step-up power sources for stabilizing the voltage, and a mode changeover switch provided between the output side of the mode-specific step-up power sources and the output side capacitor for switching between the mode-specific step-up power sources that supply power to the transmission pulse generators. The current power supply of Hassler is also silent as to whether it includes a power supplying power source connected to an input side of the mode-specific step-up power sources for supplying power, and a power regeneration capacitor with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground.

Ito does not overcome these deficiencies of Hassler. Ito is directed to semiconductor switching devices and is silent as to the transmission power source of claim 1. In particular, Ito is silent as to a transmission power source that includes a power supplying power source connected to an input side of the mode-specific step-up power sources for supplying power, and a power regeneration capacitor with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground, as required by claim 1.

Also, the rejection relies on the power regeneration switch of Ito for teaching the power regeneration capacitor of claim 1. The power regeneration capacitor of claim 1 requires a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground. Accordingly, with this configuration power stored in the power regeneration capacitor with a voltage

Application Serial No: 10/583,025
Responsive to the Office Action mailed on: December 23, 2008

lower than that of the mode-specific power sources can be boosted to be regenerated to the mode-specific power sources. In contrast, Ito teaches a power regeneration switch in which surge energy with a voltage higher than that of the semiconductor switching element is stored in a capacitor and is regenerated to a power source only by turning on the switching element (see paragraph [0035] of Ito). Accordingly, Ito does not teach or suggest the transmission power source of claim 1 or the power regeneration capacitor included in the transmission power source of claim 1.

Kodera also does not overcome these deficiencies of Hassler. Kodera is directed to an ultrasonic wave distance system and is silent as to the transmission power source of claim 1. In particular, Kodera is silent as to a transmission power source that includes a power supplying power source connected to an input side of the mode-specific step-up power sources for supplying power, and a power regeneration capacitor with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground, as required by claim 1. For at least these reasons claim 1 is not suggested by the combination of Hassler, Ito and Kodera and should be allowed. Claims 5 and 7 depend from claim 1 and should be allowed for at least the same reasons.

Claim 2 is directed to an ultrasonic diagnostic apparatus that requires, among other features, a transmission power source for supplying power to transmission pulse generators. The transmission power source includes a plurality of mode-specific step-down power sources for outputting a voltage corresponding to each of a plurality of signal processing modes, a power source side capacitor connected to an output side of each of the mode-specific step-down power sources for stabilizing the voltage, and a mode changeover switch provided between the output side of the mode-specific step-down power sources and the output side capacitor for switching between the mode-specific step-down power sources that supply power to the transmission pulse generators. The transmission power source also includes a power supplying power source connected to an input side of the mode-specific step-down power sources for supplying power, and a power regeneration capacitor with a larger capacity than that of the output side

Application Serial No: 10/583,025
Responsive to the Office Action mailed on: December 23, 2008

capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-down power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground.

The combination of Hassler, Ito and Koderä does not teach or suggest these features. As discussed above, with respect to claim 1, nowhere does the combination of Hassler, Ito and Koderä teach or suggest a transmission power source for supplying power to transmission pulse generators, or a power regeneration capacitor. In contrast to the mode-specific step-up power sources of claim 1, claim 2 requires mode-specific step-down power sources. However, for similar reasons as those described above with respect to claim 1, claim 2 is not suggested by the combination of Hassler, Ito and Koderä and should be allowed. Claims 3, 4 and 8 depend from claim 2 and should be allowed for at least the same reasons.

Claim 6 is rejected as being unpatentable over Hassler in view of Ito in view of Koderä and further in view of Niemi (US Publication No. 2004/0008094). This rejection is traversed. Claim 6 depends from claim 1 and should be allowed for at least the same reasons discussed above. Applicants do not concede the correctness of this rejection.

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Application Serial No: 10/583,025
Responsive to the Office Action mailed on: December 23, 2008

Conclusion:

Applicants respectfully assert that claims 1-8 are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.



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Respectfully submitted,

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